WSA 7: Ethernet and ARP

1) The 48-bit Ethernet address of the sender is 00:1e:c1:7e:d9:01.
2) The 48-bit destination address in the Ethernet frame is c4:41:1e:75:b1:52. It is not the Ethernet address of gaia.cs.umass.edu. It can be the mac address for the router or internet gateway address.
3) The hexadecimal value is 0x0800. This value corresponds to the IP protocol (IPv4) which belongs to Network layer.
4) The ASCII "G" in "GET" appears 66 bytes into the Ethernet frame, starting from the Ethernet frame's destination address.
5) The value of the Ethernet source address is 00:1e:c1:7e:d9:01. It is not the address of the sending computer or of gaia.cs.umass.edu. It is the address of the router which is the link used to get onto the source computer's subnet. (c4:41:1e:75:b1:52)
6) The destination address is c4:41:1e:75:b1:52 and it is the address of the sender.
7) The hexadecimal value is 0x0800. This value uses the IP protocol which belongs to Network layer.
8) The ASCII "O" in "OK" (HTTP response code) appears 66 bytes into the Ethernet frame, starting from the Ethernet frame's destination address. These 66 bytes are reserved for headers in the Network and Transport layers, as well as the link layer.
9) There are 4 Ethernet frames that carry data that is part of the complete HTTP "OK 200.." reply messages and they are 131, 132, 133 and 134th packets.
10) The hexadecimal value of the source address in the Ethernet frame containing the ARP request message is c4:41:1e:75:b1:52.
11) The hexadecimal value of the destination addresses in the Ethernet frame containing the ARP request message sent out by the sender is ff : ff : ff : ff : ff : ff.
12) The hexadecimal value for the two-byte Ethernet Frame type field is 0x0806 and the ARP protocol corresponds as an upper layer protocol.
13) The ARP opcode field in the Ethernet frame starts after a 12-byte header from the beginning.
14) Yes, the ARP request message contains the IP address of the sender. The IP address is 128.119.248.66.
15) 128.119.247.1 is the address of the device whose corresponding Ethernet address is being requested in the ARP request message sent by the sender.
16) The value of the opcode field within the ARP reply message received by the computer performing the capture is 0x0806.
17) The Ethernet address corresponding to the IP address that was specified in the ARP request message sent by the computer performing the Wireshark capture is 00:1e:c1:7e:d9:01 (3ComEuro_7e:d9:01).
18) The absence of ARP replies in the trace for other ARP request messages can be attributed to the fact that those broadcast messages are not directed towards the device running Wireshark. Since Wireshark captures packets on the local network, it only intercepts and displays messages specifically meant for the capturing device. If an ARP request is not targeted at the device running Wireshark, it will not generate a corresponding ARP reply in the trace. Additionally, if the capturing device does not possess the requested address, it will not engage with the ARP request, further contributing to the absence of ARP replies in the captured trace.